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| 09/998,848 | 11/15/2001 | Kenneth Y. Ogami | CYPR-CD01177M | 6884 |

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| EXAMINER |
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VO, TED T

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| ART UNIT | PAPER NUMBER |
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2191

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 01/29/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/998,848

Applicant(s)

OGAMI, KENNETH Y.

Examiner

Ted T. Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This action is in response to the amendment filed by RCE on 10/25/2006.

Claims 1-14, 16-35 are pending in this application.

Response to Arguments

2. Applicants' arguments in the Remarks section filed on 10/25/2006 have been respectfully considered.

The claimed invention includes a computer system. For example claim 26:

"26. A computer system comprising a processor coupled to a bus, a display device coupled to said bus, and a memory coupled to said bus, said memory containing instructions to implement a method for configuring a microcontroller, said method comprising:
displaying a collection of virtual blocks in a design system with each virtual block in said collection corresponding to a programmable block in said microcontroller;
receiving a selection of a user module defining a function;
assigning a virtual block taken from said collection to said user module; and
automatically constructing assembly code holding configuration information for a programmable block corresponding to said virtual block to perform said function."

The above claimed featured are characterized in the specification drawings, Figure 5-7.

For example, in the briefs for Figures 5-7, the specification stated,

Figure 5 is a screen display showing the user module choices in accordance with an embodiment of the present invention.

Figure 6 is a screen display showing the assignment of a virtual block to a user module in accordance with an embodiment of the present invention.

Figure 7 is a screen display showing the assignment of two virtual blocks to a user module in accordance with an embodiment of the present invention.

Bindra's reference is a statutory bar that shows a system in its Figure 4 as characterized in the specification Figures 5-7.

In the Tutor (Tutorial Revision 1.0, "PSoC Designer: Integrated Development Environment", 7-2001), it is a user guide for a user to write simple assembly code for a virtual block/user module; i.e. each virtual block/user module seen in the system of Figures 5-7 is constructed by executable code in the background, where the code represents the circuitry of the virtual block so that when a particular circuit is

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built, the code of each user modules is connected. The Tutor acts as an admission, i.e., it tutors someone the things that have been already existed. The tutor reveals the existence of code for each of virtual blocks/user modules. It is similarly to the case of Eisenstein, he only explained the mutual relation between mass and energy, $E=mc^2$. Therefore, with the admission by Applicant that he wrote the Tutor, it cannot establish diligence to overcome for the existence of code enablement in each virtual block for the PSoC Designer (STATUTORY BAR) in the background, shown by Bindra. It should be noted that it is improper to be a patent infringement for things that had been existed and known by publics for more than a year before the filing date.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-14, 16-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bindra, "Programmable SoC Delivers A New Level Of System Flexibility", 2000.

Given the broadest reasonable interpretation of followed claims in light of the specification.

As per Claim 26: Bindra discloses a PSoC Designer that is used to configure and construct code for a microcontroller; the disclosure covers the limitations,

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A computer system comprising a processor coupled to a bus, a display device coupled to said bus, and a memory coupled to said bus, said memory containing instructions to implement a method for configuring a microcontroller, said method comprising:

displaying a collection of virtual blocks in a design system with each virtual block in said collection corresponding to a programmable block in said microcontroller (Bindra: P.11, Figure 4, the system in the Figure 4 displays a collection of virtual blocks);

receiving a selection of a user module defining a function (Bindra: Figure 4: "User Modules Selected for Placement": E.g. the system of Figure 4 receives the selection of a user from selecting circuit block icons in the right top section. The selection of circuit block icons is implemented in a combination shown within the right bottom section);

assigning a virtual block taken from said collection to said user module (Figure 4, Each block in the circuit in the right bottom section in Figure 4 could be assigned in this section from selection of "User Modules" in the right top section; configuration information and connection are assigned by dialog section in the left section and the buttons given in the top rows of the PSoC Designer Tool); and

For the limitation, *automatically constructing assembly code holding configuration information for a programmable block corresponding to said virtual block to perform said function*", Bindra suggests (Figure 4 and its below illustration) "which are next mapped 'automatically constructing' onto the SoCblocks on-chip 'assembly code holding configuration information'. For 'configuration information', refer to "Global Resources" and "Placement parameters" in the left section of Figure 4,

i.e., Bindra does not explicitly address the claimed statement, "*automatically constructing source code*".

However, *automatically constructing* is an enablement of a virtual block which is known in the art as the programming code or the code in the user module representing the circuitry function of the virtual block so that when a circuit is built/simulated, the PSoc will automatically connect the code to the virtual block.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to know that, for an enablement, every user module in the PSoC Designer discussed

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by Bindra is "code" that is automatically connected to a corresponding virtual block when a circuit is built in the system, PSoc Designer, shown by Bindra.

Note, the Tutorial Revision 1.0, "PSoc Designer: Integrated Development Environment", 7-2001 admitted that any circuitry of virtual blocks built in the PSoc Designer, the code representing to each virtual block is automatically connected.

As per Claim 27: Regarding limitation, "The computer system of Claim 26, wherein said collection is displayed as a two dimensional array", see collection in the right bottom section of Figure 4.

As per Claim 28: Regarding limitation, *The computer system of Claim 26, wherein said assigning further comprises assigning a second virtual block to said user module*, it is either one of other blocks shown the right bottom section of Figure 4.

As per Claim 29: Regarding limitation, *The computer system of Claim 26, wherein said assembly code further comprises a symbolic name for a register address in said programmable block*, it is the code generated by the PSoc Design to the collection shown in the right bottom section of Figure 4, where the symbolic name for a register address is done by register mapping as addressed above.

As per Claim 30: Regarding limitation, *The computer system of claim 26 wherein said symbolic name is derived from said function*, it is functionalized to a circuit element, and based on pins assignment to the user module.

As per Claim 1:

Bindra discloses a PSoc Designer that is used to configure and construct code for a microcontroller; the disclosure covers the limitations,

A method for configuring a microcontroller, comprising:

displaying a collection of virtual blocks in a design system with each virtual block in said collection corresponding to a programmable block in said microcontroller (Bindra: See P.11, Figure 4);

receiving a selection of a user module defining a function (Bindra: See Figure 4: "User Modules Selected for Placement": E.g. see circuit block icons in the right top section which will be implemented in a combination shown within the right bottom section in the Figure 4);

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assigning a virtual block taken from said collection to said user module (See Figure 4, Each block in the circuit in the right bottom section in Figure 4 could be assigned in this section from selection of "User Modules" in the right top section; configuration information and connection are assigned by dialog section in the left section and the buttons given in the top rows of the PSoC Designer Tool); For the limitation, *automatically constructing source code comprising configuration information for a programmable block of said microcontroller corresponding to said virtual block wherein said configuration information is used to cause said programmable block to implement said function*, Bindra suggests (Figure 4 and its below illustration) "which are next mapped 'automatically constructing' onto the SoCblocks on-chip 'assembly code holding configuration information'. For 'configuration information', refer to "Global Resources" and "Placement parameters" in the left section of Figure 4,

i.e., Bindra does not explicitly address the claimed statement, "*automatically constructing source code*".

However, *automatically constructing* is an enablement of a virtual block which is known in the art as the programming code or the code in the user module representing the circuitry function of the virtual block so that when a circuit is built/simulated, the PSoc will automatically connect the code to the virtual block.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to know that, for an enablement, every user module in the PSoC Designer discussed by Bindra is "code" that is automatically connected to a corresponding virtual block when a circuit is built in the system, PSoc Designer, shown by Bindra.

As per Claim 2: Bindra further discloses,

The method of Claim 1, wherein said function comprises a pulse width modulator (Bindra: See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 36, "PWMs").

As per Claim 3: Bindra further discloses, *The method of Claim 1, wherein said function comprises a timer*. (Bindra: See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 36, "timers").

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As per Claim 4: Bindra further discloses, *The method of Claim 1, wherein said function comprises an analog-to-digital converter* (Bindra: See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 35, "ADCs").

As per Claim 5: Bindra further discloses, *The method of Claim 1, wherein said function comprises a digital-to-analog converter* (Bindra: See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 35 "DACs").

As per Claim 6: Bindra further discloses, *The method of Claim 1, wherein said function comprises a counter* (Bindra: See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 36 "counters").

As per Claim 7: Bindra further discloses, *The method of Claim 1, wherein said function comprises a signal amplifier*. (See Figure 4, refer to "User Module" that represents various Digital functions, and see P.2 line 33 "differential amplifiers").

As per Claim 8: Bindra further discloses, *The method of Claim 1, wherein said function provides serial communication*. (See Figure 4, refer to "User Module" that represents various Digital functions, and see P.3, line 9, "serial transmitters/receivers").

As per Claim 9: Bindra further discloses, *The method of Claim 1, wherein said collection is displayed as a two dimensional array of programmable analog virtual blocks and programmable digital virtual blocks*. (See collections in the right bottom section, which is two-dimensional array).

As per Claim 10: Bindra further discloses, *The method of Claim 1, wherein said assigning further comprises assigning a second virtual block to said user module* (See collections in the right bottom section, which is two dimensional array).

As per Claim 11: Bindra further discloses, *The method of Claim 1, wherein said source code comprises a symbolic name for a register address in said programmable block*. (Bindra: See page 2, lines 12-17 ('register space that holds the configuration information')).

As per Claim 12: Bindra further discloses, *The method of Claim 11 wherein said symbolic name is derived from said function*. (See Bindra 'User module' in Figure 4, where user module represents a circuit element. Each circuit element is a symbolic name function: e.g.: ADC, DAC, Timer, Counter, etc).

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As per Claim 13: Bindra disclosure covers the limitations,

A method of configuring a microcontroller having a programmable block, said method comprising:
receiving a selection of a user module defining a circuit design (Bindra: See Figure 4: "User Modules Selected for Placement": E.g. see circuit block icons in the right top section which will be implemented in a combination shown within the right bottom section in the Figure 4);
assigning a virtual block in a design system where said virtual block corresponds to said programmable block (See Figure 4, Each block in the circuit in the right bottom section in Figure 4 could be assigned in this section from selection of "User Modules" in the right top section; configuration information and connection are assigned by dialog section in the left section and the buttons given in the top rows of the PSoC Designer Tool); *and*

For the limitation, *automatically constructing assembly code comprising configuration information for said programmable block to implement said circuit design, wherein said assembly code is constructed from template assembly code by substituting information specific to said user module and information specific to said circuit design for generic information in said template assembly code*, Bindra suggests (Figure 4 and its below illustration) "which are next mapped 'automatically constructing' onto the SoCblocks on-chip 'assembly code holding configuration information'. For 'configuration information', refer to "Global Resources" and "Placement parameters" in the left section of Figure 4,

i.e., Bindra does not explicitly address the claimed statement, "*automatically constructing source code*".

However, *automatically constructing* is an enablement of a virtual block which is known in the art as the programming code or the code in the user module representing the circuitry function of the virtual block so that when a circuit is built/simulated, the PSoc will automatically connect the code to the virtual block.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to know that, for an enablement, every user module in the PSoC Designer discussed by Bindra is "code" that is automatically connected to a corresponding virtual block when a circuit is built in the system, PSoc Designer, shown by Bindra.

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As per Claim 14: Regarding,

"The method of Claim 13, wherein said automatically constructing further comprises:

computing a register address for a register within said programmable block; determining a symbolic name for said register address, said symbolic name corresponding to said user module and said circuit design; and substituting said symbolic name for a generic name in said template assembly code". See page 2,

lines 12-17 ('register space that holds the configuration information') and page 6, lines 7- 13, ('user modules are selected, pins are assigned, and register mapping are establish');

- *computing a register address for a register within said programmable block:* page 6, lines 7- 13, referring "register mapping"

- *determining a symbolic name for said register address, said symbolic name corresponding to said user module and said circuit design:* page 2, lines 12-17, referring "holds the configuration information".

- *substituting said symbolic name for a generic name in said template assembly code:* referring the code construction performed by the PSoC Designer.

As per Claim 16: regarding limitations of Claim 16.

See page 2, lines 12-17 ('register space that holds the configuration information') and page 6, lines 7- 13, ('user modules are selected, pins are assigned, and register mapping are establish') for

- *determining a symbolic name corresponding to said user module and said circuit design;* referring "holds the configuration information".

- *computing a register address for a register within said programmable block;* referring "register mapping"

- *assigning said symbolic name to said register address; and placing said symbolic name into said assembly code in place of a generic name provided in said template assembly code file:* referring the code construction performed by the PSoC Designer.

As per Claim 17: See rationale addressed in the rejection of Claim 13 above.

As per Claim 18: See rationale addressed in the rejection of Claim 14 above.

As per Claim 19: See rationale addressed in the rejection of Claim 14 above.

As per Claim 20: See rationale addressed in the rejection of Claim 16 above.

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As per Claim 21: See rationale addressed in the rejection of Claim 13 above.

As per Claim 22: See rationale addressed in the rejection of Claim 14 above.

As per Claim 23: See rationale addressed in the rejection of Claim 14 above.

As per Claim 24: See rationale addressed in the rejection of Claim 16 above.

As per Claim 25: See rationale addressed in the rejection of Claim 13 above.

As per Claim 31: Bindra disclosure covers the limitation:

A computer implemented method of generating program information for a programmable electronic device, said method comprising:

a) accessing a selected a user module, wherein said user module is defined by a first data structure; (Bindra: See Figure 4: "User Modules Selected for Placement"- E.g. see circuit block icons in the right top section implemented in a combination shown within the right bottom section in the Figure 4);

b) placing said user module within a second data structure that defines a hardware resource of said programmable electronic device; (See Figure 4, Each block in the circuit in the right bottom section in Figure 4, could be assigned in this section from selection of " User Modules" in the right top section; configuration information and connection are assigned by dialog texts in the left section buttons on the top of the PSoC Designer Tool. When running the Tool, each user module assigned in the collection in the right bottom section will be assigned accordingly);

"c) using said first and second data structures to automatically generate first source code for realizing said user module within said hardware resource; and

d) saving said first source code in a computer file"

(Bindra: For this limitation, see Figure 4 and its below illustration: "which are next mapped onto the SoCblocks on-chip", 'using said first and second data structures'. For saving said first source code in a computer file: refer to 'File', 'Edit', 'View' on the top of the PSoC Designer Tool).

For the limitation in c) "*automatically generate first source code for realizing said user module within said hardware resource*", Bindra suggests (Figure 4 and its below illustration) "which are next mapped '*automatically generate*' onto the SoCblocks on-chip '*realizing said user module within said hardware resource*'.

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i.e., Bindra does not explicitly address the claimed statement, "*automatically generate first source code*".

However, *automatically generate* is an enablement of a virtual block which is known in the art as the programming code or the code in the user module representing the circuitry function of the virtual block so that when a circuit is built/simulated, the PSoc will automatically connect the code to the virtual block.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to know that, for an enablement, every user module in the PSoc Designer discussed by Bindra is "code" that is automatically connected to a corresponding virtual block when a circuit is built in the system, PSoc Designer, shown by Bindra.

As per Claim 32: regarding limitation,

A method as described in Claim 31 further comprising:

e) accessing parameter values that define the behavior of said user module such that it operates in a prescribed manner, (Bindra: See left section in Figure 4);

f) automatically generating second source code, based on said parameter values, for causing said user module of said hardware resource to behave in said prescribed manner (Bindra suggests (Figure 4 and its below illustration) "which are next mapped 'automatically generating' onto the SoCblocks on-chip 'hardware resource to behave in said prescribed manner'; and

g) saving said second source code in a computer file (Bindra: See Figure 4, icons in the top rows used to save a file).

As per Claim 33: Bindra further discloses, "*A method as described in Claim 32 further comprising using said first and second source code to program said programmable electronic device*" because it the collection in Figure 4 would be mapped to a real design.

As per Claim 34: Bindra further discloses, *A method as described in Claim 33 wherein said programmable electronic device is a microcontroller. See Bindra's Figure 1.*

As per Claim 35: Bindra further discloses, *A method as described in Claim 31 wherein said a) and said e) are performed using a graphical user interface, because PSoc Designer is a GUI.*

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Conclusion

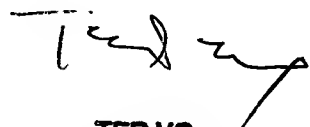
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (571) 272-3706. The examiner can normally be reached on 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708.

The facsimile number for the organization where this application or proceeding is assigned is the Central Facsimile number **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 19, 2007


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PRIMARY EXAMINER
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